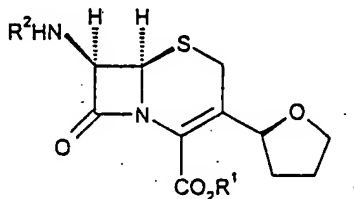


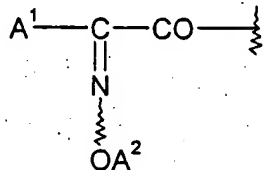
COUPLING PROCESS AND INTERMEDIATES USEFUL FOR PREPARING
CEPHALOSPORINS

Abstract of the Invention

This invention relates to a novel process for the preparation of 3-cyclic-ether-
5 substituted cephalosporins of formula I



wherein the group CO₂R¹ is a carboxylic acid or a carboxylate salt and R² has the formula:

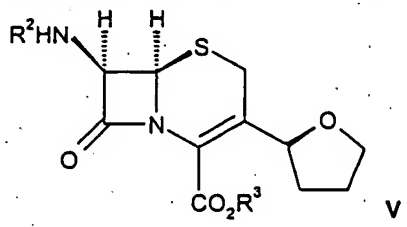
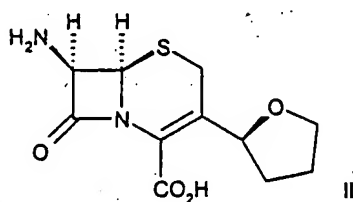


wherein

10 A¹ is selected from the group consisting of C₆-10aryl, C₁-10heteroaryl and C₁-10heterocyclyl;

A² is selected from the group consisting of hydrogen, C₁-6alkyl, C₃-10cycloalkyl, C₆-10aryl, C₁-6alkyl(CO)(C₁-6)alkyl-O-, HO(CO)(C₁-6)alkyl, mono-(C₆-10aryl)(C₁-6alkyl), di-(C₆-10aryl)(C₁-6alkyl) and tri-(C₆-10aryl)(C₁-6alkyl);

15 from a zwitterionic compound of formula II; or from a compound of formula V:



wherein R² is as defined above and R³ is para-nitrobenzyl or allyl.

The invention also relates to the preparation of the above compounds of formulae II and V.